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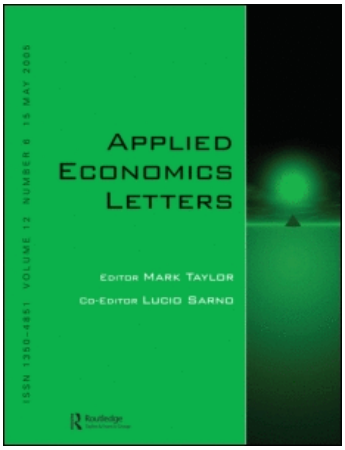

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Frank A. G. Den Butter[a]; Florian V. Eppink[a]
[a] Free University, Department of Economics, Applied Labour Economics Research Team (ALERT), De Boelelaan 1105, 1081 HV Amsterdam, The Netherlands,

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The influence of labour flows on wage drift: an empirical analysis for The Netherlands

FRANK A. G. DEN BUTTER* and FLORIAN V. EPPINK

Free University, Department of Economics, Applied Labour Economics Research Team (ALERT), De Boelelaan 1105, 1081 HV Amsterdam, The Netherlands

The wage level in The Netherlands is, by a large part, determined in collective labour agreements. However, the result of the processes of job destruction, job creation and job-to-job mobility is that workers move from less productive to more productive jobs. The empirical analysis shows that the resulting productivity gains are reflected in the wage drift, i.e. wage increases which are not part of the collective agreements. Yet, the size of the effects appears to be rather modest.

I. INTRODUCTION

Most empirical studies on wage formation in European countries focus on the outcome of the bargaining processes between trade unions and employer organizations. The resulting wage equations explain the determinants of the collectively agreed wage increases. A major determinant in these equations reflects the relative bargaining power of both parties and is included into the equations either as a Phillips-curve or as a wage-curve effect. Most traditional studies have the unemployment rate, or a transformation thereof, as an explanatory variable representing the bargaining power, whereas Broersma and Den Butter (2001, 2002) consider data on labour flows as an alternative to these traditional indicators of tightness on the labour market.

However, labour flows will not only have an influence on earned wages through bargaining power, but will also affect the part of wage changes which does not stem from collective agreements, namely the wage drift. It is likely that a direct relationship exists between wage formation and labour market dynamics. Workers move from destroyed and unproductive old jobs to newly created and more productive new jobs. The result is that, especially in the period of a tight labour market and with many vacancies, an additional wage increase will come on top of the collectively agreed wage increase with a transition from the old to the new job. The paper investigates this hypothesis by estimating the influence of labour flows on wage drift in various empirical specifications. The contents of the paper is as follows. Section II provides some theoretical justification why labour flows may have an influence on wage drift. Section III discusses the data used in our empirical analysis in section IV. Finally, Section V draws some conclusions.

II. THEORY

Although wage drift has been the subject of research during a long time (see e.g. Hansen en Rehn, 1956), only recently have modern labour market theories been applied to explain wage drift. In the traditional studies of wage formation, specified either as a Phillips curve or a wage curve (Graafland 1992, Blanchflower and Oswald 1992, Lever 1991) the unemployment rate or a transformation thereof constitutes the main determinant of real wage changes. The policy debate concentrated on the question whether the trade-off of between wage inflation and unemployment could be used for cyclical policy.

An early model explaining wage drift is developed by Holmlund (1986). This model, with implicit negotiations between trade unions and employers, focuses on the relationship between the wage drift and the collectively agreed

* Corresponding author. E-mail: fbutter@feweb.vu.nl

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wages. Because of the counter cyclical labour market policy of the government, which the negotiating parties anticipate, he asserts a negative correlation between wage drift and the cycle. However, it seems more likely that this correlation is positive, as in the model by Holden (1988), who explicitly considers negotiations between trade unions and employers on two levels. At the central level the national trade union determines the wage according to the collective agreement. Then, at the local level negotiations are conducted about the wage drift. Given the resulting wages the employers determine employment. Holden's model assumes perfect information in the negotiation process, so that central wage agreements reckon with the outcomes of the negotiations on the local level.

Muysken and Van Veen (1996) extend Holden's model with elements of efficiency wage theory. Whereas in Holden's model there is a threat of a conflict in the local wage negotiation, Muysken and Van Veen make the effort of the workers and therefore the profit of the firms dependent upon their wages. In this way wage drift enhances, to a certain level, the efficiency, and therefore the productivity of the workers.

As yet, these models explaining wage drift do not take the influence of labour market dynamics and job mobility into account. However, the labour flow approach to wage drift can be incorporated into the efficiency wage theory. In the case of labour flows and job mobility the negotiations are between individual workers and individual firms, and are not confined to one firm. When workers are looking for a new job, either on their old job or when unemployed, they will try to find a job in a firm that offers a higher wage and, consequently, where they are more productive. So this variant of the efficiency wage model implies a positive relationship between wage drift and job-to-job mobility, which will be tested in the empirical analysis.

This explanation of the wage drift reveals a conundrum in the way the so-called wage space is used in wage negotiations in the Netherlands at the central level. The wage space is equal to the sum of the inflation rate and productivity growth. It used to be the starting point for the trade unions in the wage negotiations. However, when part of the productivity gains is connected with the wage drift, there would be a kind of double counting when collective wage agreements are based on the total wage space. In fact the figure for the wage space for the collective agreements at the central level should be corrected for productivity increases which are related to job mobility.

The above theoretical considerations relate to the part of wage drift which can be attributed to labour market dynamics. Of course, there are also institutional factors which determine wage drift, such as promotions and age related wage increases.

III. DATA ON WAGE DRIFT AND LABOUR FLOWS

Up to now macro data on wage drift for The Netherlands are only available on a yearly basis from the Central Planning Bureau. These data relate to the so called 'market sector' (i.e. excluding wages in the public and semi-public sectors) and are derived from national accounts' data. Here wage drift is defined as any wage increase that results from causes other than the contract wage increase. So, apart from the wage changes associated with labour market dynamics, which are of interest to this paper, these data include statistical deviations and changes in the characteristics of the labour force (gender, age, education).

The data on labour flows used in the empirical analysis are constructed by means of a consistent accounting system of administrative data (see Broersma *et al.* (2000) and Kock (2000)).

IV. EMPIRICAL ANALYSIS

We have used a general-to-specific approach, starting from a standard wage(drift) equation specification (Graafland 1992, Holden 1998). We have adapted this specification to include labour market flow variables, resulting in:

$$\Delta d = \alpha_0 + \alpha_1 X + \alpha_2 P + \alpha_3 (w - apt)_{-1} + \alpha_4 rw + \alpha_5 Y + \alpha_6 Z$$

In this equation α_i represent the coefficients, subscript $_{-1}$ denotes one lagged period and Δd is the percentage change in wage drift as dependent variable. X is a matrix of the labour force characteristics gender and age. P represent a matrix of price index variables that have been considered, namely the consumer price index and two varieties of the producer price index: sales and purchases.

Following Holden (1998) $(w - apt)_{-1}$ has been included as lagged, nominal wage growth corrected for an increase in productivity. This variable indicates to what extent an increase in productivity is reflected in the nominal wage increase. The residual wage rw is a wage drift specific variant of the wage space mentioned in Section II. This variant equals the labour productivity growth minus the inflation-corrected contract wage increase. It therefore indicates how much room is left for negotiations at the micro-level to further enhance individual wages beyond the contractually defined level in the central agreements. This variable is expected to have a positive sign: the larger this residual wage space, the more employers will be inclined to allow individual wage increases.

Y represents a matrix of labour market flow variables and is, therefore, the focus of our empirical analysis. In the general to specific approach four alternative flow variables were selected, namely two labour flows *Fe*, which is job-to-job movement and should have a positive sign, and

Fi which is the ratio of the number of employees entering the labour force and those leaving it, which should have a negative sign at the aggregate level. Here it is assumed that those entering the labour force are less productive than those leaving the labour force, because of age and, may be, due to loss of human capital during unemployment. Also included in *Y* are two job flows, *Fjc* being the number of created jobs and *Fjd* the number of destroyed jobs. For these variables a positive and a negative sign are expected respectively. Finally, *Z* is a matrix of traditional indicators of labour market tightness that has been experimented with, namely vacancy and unemployment rates.

Table 1 gives the results of four alternative specifications of the wage drift equation. Judged to economic interpretation and goodness of fit regression (4) would be preferred. It appeared that none of the labour force characteristics performed well in any of the regressions, so that they were left out of the preferred estimations. The consumer price index performed better than the producer price indices in all regressions. It was only significant in regression (1), as that regression contains the *nominal* variant of the residual wage space.

The lagged term $(w - apt)_{-1}$ representing the wage growth corrected for productivity in the previous year shows up with a positive coefficient. An increase of one percentage point in this variable results in an increase of 0.17 percentage point in the wage drift, while the relevant elasticity equals 0.25. It indicates that there is some persistence in the effect of labour market conditions on wage drift. The residual wage space *rw* appears to be an important explanatory variable in the regressions. If *rw* increases by one percentage point, the wage drift will rise by 0.26 percentage point. This result shows that employers take the outcome of central negotiations into account when bargaining with employees on wage drift. It supports the view that the contract wage and wage drift are communicating vessels to some extent (Van der Wiel 1998, 1999).

Table 1. *OLS equations for wage drift*

	Observation period for equations (1), (2), (3): 1971–1997, for equation (4): 1972–1997			
	(1)	(2)	(3)	(4)
CPI	0.217*			
	(2.56)			
$(w - apt)_{-1}$	0.178*	0.169*	0.177*	0.174*
	(2.98)	(4.40)	(4.68)	(4.95)
rw		0.228*	0.256*	0.258*
		(3.62)	(3.80)	(4.28)
$(apt - q)$	0.231*			
	(3.48)			
Fe	0.005	0.005	−0.012	
	(0.51)	(0.55)	(−0.93)	
Fe_{-1}			0.017*	0.016*
			(2.09)	(2.06)
Fi	−0.062*	−0.061*	−0.085*	−0.069*
	(−2.81)	(−2.87)	(−2.27)	(−3.26)
Fjc			0.044	0.029*
			(1.29)	(1.90)
Fjd			0.000	
			(0.00)	
V	0.031*	0.031*	0.033*	0.027*
	(3.10)	(3.17)	(3.26)	(3.41)
Durbin Watson	2.27	2.25	2.20	2.17
Adj. R^2	0.48	0.50	0.57	0.60
Standard error	0.63	0.62	0.57	0.55

Note: * indicates significance at the 5% level, *t*-values between parentheses.

The coefficients for the labour and job flow variables are all significant, yet their values are relatively small. If job-to-job movement *Fe* in $t - 1$ increased by 1%, then wage drift will increase by 0.016% in period *t*. It is interesting to notice that this relation can only be obtained for lagged job-to-job movement: contemporaneous job-to-job mobility is uncorrelated with wage drift. It may be that employers only let new employees share in their increased productivity after a trial period. The lag may also have an institutional background. When bargaining, employers and employees can only know data from previous periods with relative certainty. When the ratio of people entering and leaving the labour force *Fi* decreases one percentage point the wage drift increases with 0.07 percentage points. This effect of a relative increase of new entrants to the labour market on wage drift is therefore the largest of the dynamic labour market variables of the model. The effect of creation of new jobs *Fjc* on wage drift appears to be small, as a 1% increase in the number of newly created jobs results in an increase of wage drift of only 0.03%. Job destruction *Fjd* does not appear to have a role in the explanation of wage drift growth. Of the static labour market indicators the percentage change in the number of vacancies performed best. Its influence on wage drift is also limited, as the elasticity is only 0.03. Yet, in spite of these limited effects in a quantitative sense, it is noted that in our specification (4) in Table 1 almost all explanatory variables obtain the expected signs and are significant.

V. CONCLUSIONS

The empirical analysis of this paper, using macro-data for The Netherlands for the period 1971–1997, shows that labour flows have some influence on wage drift in the market sector, i.e. the part of wage changes other than contractual wage increases. An inter firm efficiency wage model may account for these effects: firms would attract workers from other firms by higher salaries when they can be more productive in their new jobs. This will happen mainly in good times: during periods with tight labour market conditions and with much job creation.

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